APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/960,023	09/21/2001	Patrick J. Meaney	POU920010094US1	7005

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EXAMINER
CHANG, ERIC

ART UNIT	PAPER NUMBER
2116	

DATE MAILED: 02/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
Office Action Summary	09/960,023	MEANEY ET AL.
	Examiner	Art Unit	
	Eric Chang	2116	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>08 November 2004</u>.

2a)☒ This action is **FINAL.**   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-13* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>21 September 2001</u> is/are: a)☐ accepted or b)☒ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

1.   Claims 1-13 are pending.

Drawings

2.   Figure 1 should be designated by a legend such as --Prior Art-- because only that which is

old is illustrated. See MPEP § 608.02(g). Corrected drawing sheets are required in reply to the

Office action to avoid abandonment of the application. The replacement sheet(s) should be

labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any

portion of the drawing figures. If the changes are not accepted by the examiner, the applicant

will be notified and informed of any required corrective action in the next Office action. The

objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

3.   Claim 1 recites the limitation "the wait state" in lines12-13 of the claim. There is

insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

4.   The text of those sections of Title 35, U.S. Code not included in this action can be found

in a prior Office action.

5.   Claims 1-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent

5,613,071 to Rankin et al., in view of Applicant's Admitted Prior Art (APA).

6.   As to claim 1, Rankin discloses a method of recalibrating an interface [58] in a computer

system, comprising the steps of: fencing the interface [col. 8, lines 50-62]; recalibrating the

interface for synchronization [col. 8, lines 58-60]; and unfencing the interface [col. 8, lines 50-

62].

Rankin teaches the limitations of the claim, including that the computer system

implements SMP protocols [col. 1, lines 51-63] but does not specifically teach that operations of

the system are halted during the fencing and recalibration operations.

APA teaches that SMP systems use source-synchronous, self-calibrating interfaces [page

1, lines 15-20]. Thus, APA teaches an SMP interface that requires synchronization recalibration

similar to that of Rankin. APA further teaches that placing such a system into a wait state is well

known to one of ordinary skill in the art [page 2, lines 26-27].

At the time that the invention was made, it would have been obvious to a person of

ordinary skill in the art to employ the wait state as taught by APA. One of ordinary skill in the

art would have been motivated to do so that the processor is not being used during the

recalibration operations.

It would have been obvious to one of ordinary skill in the art to combine the teachings of

the cited references because they are both directed to the problem of synchronizing interfaces in

SMP systems. Moreover, the wait state means taught by Rankin would improve the system

consistency of APA because it ensured that there are no pending requests when the system

begins synchronization [col. 8, lines 50-58].

7.   As to claim 2, APA discloses the halting operations are done with a system quiesce

operation [page 2, lines 26-28, and page 3, lines 1-2].

8.   As to claim 3, APA discloses calibrating the interface is accomplished by sending and

sampling a known data pattern [page 1, lines 22-25].

9.   As to claim 4, APA discloses calibrating the interface is accomplished by recalculating

the frequency and applying the appropriate delay adjustment to the clock [page 1, lines 15-18,

and page 2, lines 21-25].

10.   As to claim 5, Rankin discloses a method for re-calibration of an interface, comprising:

preventing the bus interface from being used by a system [col. 8, lines 56-58]; performing a

synchronization process for calibration [col. 8, lines 58-60]; taking the system of the interface

out of said wait state [col. 8, lines 56-58].

11.   As to claim 6, APA discloses that it is well known in the art that a step of data deskew

has been performed as part of the original system interface initialization [page 2, lines 21-25],

and that it would be obvious to one of ordinary skill in the art that deskewing data during said

fast initialization step is not required during re-calibration because it had already been performed

during original initialization [page 2, lines 23-25].

12.   As to claim 7, Rankin teaches fencing prevents the interface from being used until after

the synchronization is completed [col. 8, lines 56-60]. In addition, APA discloses the system

may be quiesced [page 2, lines 26-27] and sending a calibration pattern and allowing calibration

logic to re-center the clock applicable to the interface to compensate for new environmental

conditions and circuit changes [page 1, lines 26-28].

13.   As to claims 8-9, Rankin discloses an interface synchronization process [col. 2, lines 3-

15]. APA teaches that circuit or environmental characteristics over time adversely affect the

operation of the interface [page 1, lines 26-28]. It would be obvious to one of ordinary skill in

the art that the synchronization should be performed periodically, or also be triggered by a user-

managed event, in case drift caused by environmental conditions is detected and needs to be

corrected.

14.   As to claim 10, Rankin discloses wherein a system interface is fenced prior to performing

a synchronization process [col. 8, lines 56-60]; after which the system for the interface is

unfenced before commencing operations to allow interface use again [col. 8, lines 56-60]. APA

teaches the system may be quiesced [page 2, lines 26-27] and during calibration, the step of

synchronizing the interface recalculates the frequency of the clock for the interface and applies

an appropriate delay adjustment to the clock for the interface, as is well known in the art [page 1,

lines 15-18, and page 2, lines 21-23].

15.   As to claim 11, APA discloses the recalibration stem includes sending a pattern across the interface and adjusting the clock through re-centering without data de-skewing but with shifting to the clock to re-center the interface data capturing window for the `eye` of the data capturing window [page 1, lines 18-25].

16.   As to claim 12, APA discloses the recalibration stem includes re-calculating the clock frequency of the interface against the current hardware and re-applying the clock frequency calculation to the clock delay [page 1, lines 15-18, and page 2, lines 21-23], and that such recalibration should occur when the machine is being cycled down to failure and the major change needing re-calibration is cycle time [page 2, lines 1-12].

17.   Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over .S. Patent 5,613,071 to Rankin et al., in view of Applicant's Admitted Prior Art (APA), and in further view of U.S. Patent 6,470,458 to Dreps et al.

18.   As to claim 13, Rankin discloses wherein a system interface is fenced prior to performing a synchronization process [col. 8, lines 56-60]; after which the system for the interface is unfenced before commencing operations to allow interface use again [col. 8, lines 56-60]. APA teaches the system may be quiesced [page 2, lines 26-27] and during calibration, the step of synchronizing the interface recalculates the frequency of the clock for the interface and applies an appropriate delay adjustment to the clock for the interface, as is well known in the art [page 1, lines 15-18, and page 2, lines 21-23].

Rankin and APA teach the limitations of the claim but do not teach that a state machine is used to control the calibration process.

Dreps teaches a method for synchronization between a data processing system's processor chips [col. 2, lines 24-29]. Thus, Dreps teaches an interprocessor synchronization method similar to that of Rankin and APA. Furthermore, Dreps teaches that a state machine controls calibration [col. 9, lines 15-31], thereby allowing the interface to restart once again.

At the time that the invention was made, it would have been obvious to a person of ordinary skill in the art to employ the synchronization state machine as taught by Dreps. One of ordinary skill in the art would have been motivated to do so that processors in a multiprocessor system may be synchronized.

It would have been obvious to one of ordinary skill in the art to combine the teachings of the cited references because they are both directed to the problem of synchronizing system processors. Moreover, the synchronization state machine means taught by Dreps would improve the teachings of Rankin and APA because it allowed for an improved method of self-synchronization [col. 2, lines 18-26].

Response to Arguments

19.   Applicant's arguments with respect to claims 1-13 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

20.	Applicant's amendment necessitated the new ground(s) of rejection presented in this

Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the date of this

final action.

21.	Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Eric Chang whose telephone number is (571) 272-3671. The

examiner can normally be reached on M-F 9:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Lynne Browne can be reached on (571) 272-3670. The fax phone number for the

organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

February 2, 2005
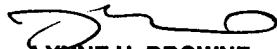
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